

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 05 SEP 2005

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Applicant's or agent's file reference 58259WO004	FOR FURTHER ACTION <div style="text-align: right;">See Form PCT/PEA/416</div>	
International application No. PCTUS2004/010840	International filing date (day/month/year) 08.04.2004	Priority date (day/month/year) 25.04.2003
International Patent Classification (IPC) or national classification and IPC B24D11/00		
Applicant 3M INNOVATIVE PROPERTIES COMPANY et al.		
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 4 sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 1 sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).		
4. This report contains indications relating to the following items: <div style="margin-left: 20px;"> <input checked="" type="checkbox"/> Box No. I Basis of the opinion <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application </div>		
Date of submission of the demand 25.02.2005	Date of completion of this report 06.09.2005	
Name and mailing address of the international preliminary examining authority: <div style="display: flex; align-items: center;"> <div> European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016 </div> </div>	Authorized Officer Eschbach, D Telephone No. +31 70 340-3257	



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/010840

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-20 . as originally filed

Claims, Numbers

8-23 as originally filed
1-7 received on 28.02.2005 with letter of 25.02.2005

Drawings, Sheets

1/1 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing *(specify)*:
 - ☐ any table(s) related to sequence listing *(specify)*:
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing *(specify)*:
 - ☐ any table(s) related to sequence listing *(specify)*:

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/010840

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-23
Inventive step (IS)	Yes: Claims	
	No: Claims	1-23
Industrial applicability (IA)	Yes: Claims	1-23
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

PCT/US2004/010840

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

Reference is made to the following documents:

D1: US-A-5 573 619

D2: US-A-5 565 049

D3: US-A-4 886 701

D4: US-A-5 626 512

D5: US-A-5 681 361 cited by the applicant

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

The document D5 discloses:
a method of making an abrasive article according to the features of claim 1, especially the use of prebond web is mentioned as well as the use of dry particulate material, see respectively column 4, lines 60 to 63 and lines 46 to 59.

Dependent claims 2 to 23 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, see documents D1 to D5 and the corresponding passages cited in the search report.

1. A method of making an abrasive article, including the steps of
 - (i) forming a three-dimensional lofty nonwoven fibrous web contacted with dry particulate material that includes fusible binder particles;
 - (ii) exposing the web to conditions that cause the binder particles to form a flowable liquid binder, and then solidifying the liquid binder to form bonds between the fibres of the web and thereby provide a lofty pre-bonded web having more than 50% intercommunicated voids; and
 - (iii) applying abrasive particles to the pre-bonded web, and bonding the abrasive particles to the fibres of the pre-bonded web to provide the abrasive article.
2. A method as claimed in claim 1, in which step (i) comprises forming fibres into a three-dimensional nonwoven web, and then contacting the web with the dry particulate material.
3. A method as claimed in claim 1, in which step (i) comprises mixing fibres with the dry particulate material, and then forming the mixture into a three-dimensional nonwoven web.
4. A method as claimed in any one of the preceding claims, in which the fibres of the web comprises synthetic fibres or natural fibres or mixtures thereof.
5. A method as claimed in claim 4, in which the fibres of the web comprise polyamide fibres.
6. A method as claimed in claim 4, in which the fibres of the web comprises coco, sisal and/or hemp fibres.
7. A method as claimed in any one of the proceeding claims, in which the fusible binder particles comprise thermosetting or thermoplastic materials.